

MODULE DIRECTORY

FOUNDATION LEVEL

SCHOOL OF COMPUTING

FACULTY OF SCIENCE AND ART

2026-2027

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INTRODUCTION

This Module Directory includes all the modules for the Foundation Level within the School of Computing in the academic year 2026-2027.

This directory accompanies the Programme of Study Handbook, which will provide you with details of which modules you will be studying for your programme this year in the 'Programme of Study' section. This directory may include modules that are running on other programmes of study within your School/Faculty. If you require assistance in identifying the modules for your programme of study, please contact the Programme Manager (whose name and contact details are provided in the accompanying Programme of Study Handbook), or the relevant Faculty Office.

The University has made every effort to make the information as full and as accurate as possible, but you should note that minor changes in the organisation of modules between the planning stage and the actual teaching are inevitable. We shall try to keep any such changes to a minimum, and you will receive plenty of advance warning in the event of any alteration. We would also be grateful if you would let us know about any changes that you think might be helpful if introduced into future handbooks.

MODULES

Module Code	ACCA4019
Title	Analysing and Solving Problems
Date	14/05/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To provide students with the ability to develop generic solutions to problems using abstract thinking skills

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Evaluate a problem and formulate requirements and constraints.
- Analyse a problem and produce a logical solution

INDICATIVE CONTENT

- Deconstructing Technical Language and Identifying Problems
- Problem solving approaches and techniques
- Interpreting natural language problems
- Subdividing problems
- Constraining problems
- Determining generic and specific solutions.
- Abstract thinking skills
- Critical Thinking Skills
- Reapplying solutions across different contexts
- Rules, heuristics and algorithms
- Logic and rhetoric
- Logical fallacies
- Boolean algebra
- Statistics and analysing results

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☐ Written exam ☐ Coursework ☒ Practical

Mode of assessment	Volume	Weighting
Practical – for example, a Moodle-based quiz or a task such as flowcharting a problem	1 hour	50%

Assessment Component 2

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written assessment	1500 words	50%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	50%
Practical	50%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACCA4019	
Module Title	Analysing and Solving Problems	
Classification	Reading List entry	Electronic*
Essential	Curzon P and McCowan P (2017) Power Of Computational Thinking, The: Games, Magic And Puzzles To Help You Become A Computational Thinker, World Scientific	☒
Essential	Levitin, A and Levitin, M (2011) Algorithmic Puzzles, Oxford University Press.	☐
Further	Michalewicz, M and Michalewicz Z (2010), Puzzle-based Learning; An introduction to critical thinking, mathematics and problem solving, Hybrid Publishers.	☐

Further	Fraser, Jen and Anthony, P (2014) Everyone's a Genius: Simple Tips to Boost Your Brilliance Now, Ideation Training Pty Ltd	☐
Further	Gardner, M (1978) aha! Insight, Scientific American.	☐
Further	McInerney, D Q (2005) Being Logical, Random House	☐
Further	Watanabe, K (2009) Problem Solving 101: A Simple Book for Smart People	☐

Module Code	ACCA4020
Title	Introduction to Computer Programming
Date	14/05/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To enable students to understand and apply programming constructs, languages and tools.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Demonstrate an understanding of the syntax, semantics and software constructs of programming language.
- Deploy a programming language in developing a program given a well-defined scenario or problem.

INDICATIVE CONTENT

- Programming/scripting languages e.g. C, Python, Perl, etc.
- Declaring variables, local and global variables, arrays, constants.
- Branch constructs: if, else, switch, Boolean AND/OR/NOT
- Loop constructs: while, for loops
- Functions: Arguments and return values
- Design and documentation of code e.g. flow diagrams
- Using a code editor, fundamental debugging techniques

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written report (with associated coding)	3000 words equivalent	100%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	100%
Practical	0%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACCA4020	
Module Title	Introduction to Computer Programming	
Classification	Reading List entry	Electronic*
Essential	McGrath, M (2018) C Programming In Easy Steps 5 th Edition	☒
Essential	Novikov, D (2019) <i>Python for Beginners: The Ultimate Beginners Guide to Python Programming With Step by Step Guidance and Hands-On Examples.</i>	☒
Further	Romano, F. (2018) <i>Learn Python Programming: The no-nonsense, beginner's guide to programming, data science, and web development with Python 3.7, 2nd Edition</i> , Packt Publishing	☒
Further	McGrath, M (2018) <i>Python in Easy Steps, 2nd Edition</i> , In Easy Steps Limited	☒

Module Code	ACCA4021
Title	Introduction to Computer Systems
Date	14/05/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To provide students with a fundamental understanding of the key components and characteristics of computer systems.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Understand computer hardware, operating systems and computer networking principles.
- To install and manage a networked computer and a range of software applications.

INDICATIVE CONTENT

- Operating systems. Processes, services and applications. User management. OS commands.
- Computer networks, network cards, Ethernet cable, etc. RJ45 sockets, jacks and wiring, 4-port Ethernet switches.
- File systems e.g. files, folders, file name extensions, etc.
- Components of PC, processors, memory, motherboard, motherboard interfaces, e.g. PCI, PCI Express, and AGP.
- Security, personal firewalls, anti-virus software and software patches.
- Installing and configuring applications, windows registry, user rights, etc.
- The role of a network administrator
- Internet access, Broadband Routers, Internet Service Providers, DHCP, etc.
- Disposing of computer equipment, environmental, privacy and security implications

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☒ Written exam ☐ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Exam	1 hour	50%

Assessment Component 2

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written Assessment	1500 words	50%

Assessment Summary

Activity type	Percentage
Written exam	50%
Coursework	50%
Practical	0%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACCA4021	
Module Title	Introduction to Computer Systems	
Classification	Reading List entry	Electronic*
Essential	Bott, E, Stinson, T (2018) Windows 10 Inside Out, Microsoft Press	☒
Essential	Stallings, W (2012) Computer Organization and Architecture: Designing for Performance, Pearson Education	☐
Further	Patterson, D A (2016) Computer Organization and Design: The Hardware/Software Interface (The Morgan Kaufmann Series in Computer Architecture and Design), Morgan Kaufmann Publishers	☒
Further	Tanenbaum, A S, Bot, H, (2014) Modern Operating Systems, 4 th Edition, Prentice Hall	☐
Further	Tanenbaum, A (2013) Computer Networks, Prentice Hall	☐

Module Code	ACDA4012
Title	Introduction to Electronics
Date	14/05/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To provide an essential understanding of electrical and electronic concepts considered necessary as a foundation for an engineering degree courses and to show the relevance of those concepts in everyday applications

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Demonstrate a sound grasp of basic electrical and electronic principles in analysing simple problems
- Explain and evaluate the operation of simple Electrical/Electronic networks

INDICATIVE CONTENT

- DC Electrical Circuit: Electrical current/voltage. Mechanical analogies. Resistors in series and parallel. Heating effect of current, variation of resistance with temperature incandescent lamp. Voltage divider and current divider. Simple circuit calculations, use of Ohm's law and Kirchhoff's laws
- Signals: DC, sinusoid, square wave. Period and frequency. Use of oscilloscope. Peak, mean and rms.
- AC circuits: Capacitors and inductors. Rate of change of current and voltage,
- C R and L R behaviour to sine and step voltages
- Diodes and Rectifiers: Simple ideas of semiconductors. Simple half wave rectifiers.
- Transistor Amplifiers/Switches: What is a transistor? Design of simple amplifiers.
- Operational Amplifiers: What is an op. Amp? Design of simple inverting and non-inverting amplifiers.
- Digital Circuits: Representation of information by logic levels. Basic gates, AND, OR, NAND, NOR, NOT, XOR. Simple combinational logic.

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written assessment	1500 words	50%

Assessment Component 2

(Tick one)

☒ Written exam ☐ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written Exam	1 hour	50%

Assessment Summary

Activity type	Percentage
Written exam	50%
Coursework	50%
Practical	0%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACDA4012	
Module Title	Introduction to Electronics	
Classification	Reading List entry	Electronic*
Essential	Bird, J (2017) Electrical Circuit Theory and Technology 6 th Ed, Routledge	☒
Essential	Floyd, T L (2012) DC/AC Fundamentals: A Systems Approach, Prentice Hall	☐
Further	Sinclair, I., Dutton, J (2007) Practical Electronics Handbook, Newnes	☐

Module Code	ACHA4005
Title	Academic Skills
Date	14/05/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To enable students to communicate effectively in a written form when describing concepts or constructing arguments
- To enable students to use a range of suitable academic to help them present information and data.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Write clearly and effectively when describing ideas and concepts relevant to their field and consulting and reference appropriate resources to support their analysis or findings.
- Use a range of suitable academic tools (theoretical, computational or practical) to help solve problems and communicate the results in a professional manner.

INDICATIVE CONTENT

- The learning process and the skills required to develop an understanding of a concept or principle.
- Gathering information, planning and researching a topic
- Strategies for taking notes, writing essays and reports
- Understanding the elements of non-verbal communication, constructing and documenting arguments
- Developing confidence in tackling communication tasks and being able to debate effectively
- The importance of referencing and the standard referencing systems
- Apply professional skills learned to area of study
- Developing knowledge of suitable computational software that can help with academic work, such as Microsoft Word and Microsoft Excel
- Gaining relevant additional skills specific to programme stream.

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Report	1500 words	50%

Assessment Component 2

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Report	1500 words	50%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	100%
Practical	0%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACHA4005	
Module Title	Academic Skills	
Classification	Reading List entry	Electronic*
Essential	Osmond, A (2015) Academic Writing and Grammar for Students 2 nd Edition, Palgrave Macmillan	☐
Essential	Pears, R, Sheilds, G (2019) Cite Them Right: The Essential Referencing Guide, Palgrave Macmillan	☒
Essential	UWTSD Library Referencing Handbooks, available at: https://www.uwt.ac.uk/library/student-essentials/referencing-handbooks/	☒
Further	Cottrell, S (2019) The Study Skills Handbook, SAGE Publications Ltd	☒
Further	Gillett, A (2009) Inside Track to Successful Academic Writing, Longman	☐
Further	Greetham, B (2013) How to Write Better Essays, Palgrave Macmillan	☐

	Cottrell, S (2011) Critical Thinking Skills: Developing Effective Analysis and Argument, Palgrave Macmillan	☐
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Module Code	ACHA4008
Title	Integrating Project
Date	14/05/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To enable students to apply the knowledge they have gained through the modules they have studied, in the development of project. The product of the project will take the form of a subject related application which may be a software application, electronics application, design, etc.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- To implement an application/design synthesizing their knowledge from a number of modules
- To analyse a well-defined scenario, establish the requirements and develop an appropriate solution

INDICATIVE CONTENT

- Overview of research and development methodologies suitable for student projects.
- Ethical issues
- Sustainability issues
- Contingency planning
- Development of documentation for academic projects
- Presentation of work produced to an academic audience
- Subject-specific content as required

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

(Tick one)

☐ Written exam ☒ Coursework ☐ Practical

Mode of assessment	Volume	Weighting
Written assessment	2000 words	60%

Assessment Component 2

(Tick one)

☐ Written exam ☐ Coursework ☒ Practical

Mode of assessment	Volume	Weighting
Presentation or Demonstration	Approx 10 minutes	40%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	60%
Practical	40%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACHA4008	
Module Title	Integrating Project	
Classification	Reading List entry	Electronic*
Essential	Larson, E.W. (2017) 7th Edition, Project Management. McGraw-Hill	☒
Further	Newton, R. (2016), Project Management Step by Step, FT Publishing International	☒
Further	Hughes, B. (2015), 5th Edition Project Management for IT-Related Projects, British Computer Society	☒
Further	Christopher, D (2013) Computing Projects, Pearson Education	☐
Further	Berndtsson, T (2012) Planning and Implementing your Project, Springer Verlag	☐
Further	Cottrell, S.(2011) Critical Thinking Skills: Developing Effective Analysis and Argument, Palgrave Macmillan	☐
Further	Collis, J., Hussey, R (2009) Business Research: a Practical Guide for Undergraduate and Postgraduate Students, Palgrave Macmillan	☐